

**MARYLAND COASTAL ZONE MANAGEMENT PROGRAM
SECTION 309 STRATEGY (2000-2005)**

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Introduction

The Maryland Coastal Zone Management Program has identified two general areas to concentrate efforts for the Section 309 Coastal Enhancement Strategy: (1) Coastal Hazards - shore erosion, hazard mitigation strategies, and sea level rise and (2) Cumulative and Secondary Impacts - watershed restoration action strategies. Each of these areas were identified as a high priority during the State's Section 309 Assessment, which reviewed and commented on all nine enhancement areas found in the Coastal Zone Management Act. This strategy focuses on filling gaps recognized under these enhancement areas in the Assessment.

In addition, the Assessment identified two areas where future Section 309 Strategies may be appropriate: Cumulative and Secondary Impacts - Marine Protected Areas and Public Access. At this time, there is not enough information to develop complete strategies for these initiatives; however, Maryland feels that these initiatives are important. With this in mind, the Maryland CZM Program will use other resources to begin research into these enhancement areas. The State reserves the right to add these initiatives to the 2001-2005 Section 309 Strategy at a later date, if deemed appropriate.

Overview of Proposed Budget

The following table is an overview of a proposed budget for the 2001-2005 Maryland Section 309 Strategy.

Section 309 Enhancement Area	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
<i>Coastal Hazards</i> - Shore Erosion, Hazard Mitigation Planning and Sea Level Rise	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000
<i>Cumulative and Secondary Impacts</i> - Watershed Restoration Action Strategies	\$270,000	\$270,000	\$270,000	\$270,000	\$270,000
Totals	\$520,000	\$520,000	\$520,000	\$520,000	\$520,000

Strategy Format

The remainder of this strategy will be divided into the two Section 309 enhancement areas. For each, the following components are included: (1) summary of problem, (2) proposed program changes, (3) anticipated effects, (4) appropriateness of program change, (5) fiscal and technical needs, (6) budget, (7) workplan, and (8) likelihood of success.

COASTAL HAZARDS SHORE EROSION AND SEA LEVEL RISE

Issue Summary

The coastal zone in Maryland comprises 66% of the total land area of the State. Bordering this coastal area is over 4,300 miles of shoreline along the Atlantic Ocean, coastal bays and Chesapeake Bay, and its tributaries. These shoreline areas are affected by a variety of hazards, particularly coastal erosion and sea level rise. Coastal hazards represent significant threats to resources and infrastructure in Maryland's coastal zone.

Shoreline erosion is an ongoing problem; Maryland loses approximately 260 acres of land each year to shore erosion. The unconsolidated nature of many shoreline sediments make them particularly susceptible to erosive forces. In addition, extensive stretches of shoreline are exposed to a large fetch and thereby are threatened by both storm-induced erosion and chronic wave action. The impacts of erosion include the loss of land and its associated economic, cultural and ecological values and degraded water quality resulting from increased sediment and nutrient loads. Reduced water quality, in turn, impacts living resources.

Shore erosion is compounded by the effects of sea level rise, which increases the areas exposed to and affected by erosion. The historical average rate of sea level rise in Maryland is between 3-4 mm per year or 1 foot per century, a rate nearly twice the global average. However, current scientific research shows that continued climate change will accelerate sea level rise rates, resulting in a rise of two to three feet along Maryland's shores by the year 2100 (Leatherman et al., 1995).

Currently, the State does not have a comprehensive approach to either managing shore erosion or addressing the impacts of sea level rise. A coordinated approach to coastal hazard mitigation is necessary to effectively and efficiently manage coastal resources and plan future development.

Proposed Program Changes

The proposed Coastal Hazards Strategy includes three main components: (1) development of a comprehensive shore erosion management plan; (2) adoption and implementation of sea level rise response recommendations; and (3) development or update of local hazard mitigation plans.

A statewide Comprehensive Shore Erosion Management Plan will be developed for adoption by Maryland. This will be a multi-year effort requiring the collection of new data and the development of new products from existing data sets. Development of a comprehensive plan will be accomplished by: (1) collecting and interpreting critical data and information; (2) developing a sea level rise predictive model; (3) developing and executing regional management strategies; and (4) continuing and expanding public outreach and education activities.

Second, the Department of Natural Resources recently adopted the 2000 document entitled *Sea Level Response Strategy for Maryland* as a guideline for addressing sea level rise issues in the state. The *Strategy* outlines a number of key activities which could be undertaken to further sea level rise planning, including: outreach and engagement; technology, data, and research support; targeting on-going state initiatives to include sea level rise response mechanisms; and amending existing state and local statutes related to coastal hazards and resource management. This four-pronged approach will result in an integrated policy to mitigate the effects of sea level rise.

Concurrent with state-level planning for shore erosion control and sea level rise, local governments will identify areas at risk for coastal flooding and storm surge events through development of Local Hazard Mitigation Plans. Very few coastal communities currently have hazard mitigation plans because they lack either the resources or the expertise to develop effective plans. The few plans that have been developed need to be updated and reviewed for sufficiency and effectiveness. In coordination with the Maryland Emergency Management Agency, the Maryland Department of the Environment and coastal counties, Coastal Zone Management Section 309 funding will be used to aid in the development of approximately two Local Hazard Mitigation Plans at the county level per year. These plans will serve as a mechanism to further state planning for shore erosion control and sea level rise mitigation and will reduce future local impacts associated with coastal hazards.

Anticipated Effects of Program Change

The efforts described in this strategy address critical and long term issues including future coastal development and land use; natural resource protection; public safety; and infrastructure repair and replacement cost management. The initial collection of data and information and the subsequent development of a comprehensive shore erosion control plan and local hazard mitigation plans and the adoption and implementation of sea level rise strategy recommendations will provide critical tools to state and local managers. Anticipated outcomes include:

- Regional Shore Erosion Control Planning: Partnerships between DNR and local governments will be expanded to include all counties in Maryland. Through these partnerships, Maryland CZM will prioritize stretches of shoreline for erosion control activities, review ongoing planning initiatives, create impact pilot studies, develop ranking criteria, and utilize modeling tools to evaluate stretches of shoreline for shore erosion control. The final product will identify strategies for shore erosion control to be used along particular stretches of shoreline. These strategies may include: structural and non-structural erosion control devices, designation of natural erosion areas, land acquisition, and establishment of local erosion-based setback requirements.
- Development of a Comprehensive Shore Erosion Control Plan: The regional plans described above will be combined and incorporated into a statewide Comprehensive Shore Erosion Management Plan. The Comprehensive Plan will provide statewide focus for managing state financial and technical support for local communities and identifying local areas of state concern. The Plan will also provide the opportunity for information sharing between similarly affected

counties.

- Sea Level Rise Data Collection and Modeling: LIDAR data will be collected to provide detailed elevation contours for coastal counties. The newly-acquired topographic data will be used to create a model that will identify areas potentially vulnerable to increased erosion due to sea level rise and other on-going coastal processes.
- Implementation of Sea Level Rise Response Mechanisms: The Maryland CZM will follow through on appropriate recommendations outlined in the *Sea Level Rise Response Strategy for Maryland*, including increased public outreach and technical assistance as well as working to target ongoing state initiatives to include sea level rise response mechanisms.
- Development of Local Hazard Mitigation Plans: Several state agencies will coordinate with local communities to develop Local Hazard Mitigation Plans to identify and plan for an assortment of hazards including coastal hazards.

Improved planning in all these areas will result in reduced financial losses to both public and private entities, fewer losses of natural resources through habitat protection, increased emergency management information, and improved coordination and cooperation between management entities.

Appropriateness of Program Change

A number of documents recently completed by the Maryland Coastal Zone Management Program and other state agencies highlight the need for improved planning for shore erosion control and sea level rise. First, the *Final Report* of the Governor's Shore Erosion Task Force (2000) and the *Sea Level Rise Response Strategy for Maryland* (2000) both found deficiencies in Maryland's current management framework to control shore erosion and plan for sea level rise. Problems included: use of a site-by-site approach; lack of coordination and duplication of effort among agencies with jurisdiction; lack of information and understanding of the issues associated with shore erosion and sea level rise; lack of public outreach; and, lack of funding. Second, the *State of Maryland Hazard Mitigation Plan* (2000) identified and summarized environmental hazards throughout the State, reviewed the existing capacity to deal with these hazards and outlined suggestions for additional efforts. Finally, the Maryland CZM Section 309 Assessment for Coastal Hazards built on the findings of the documents described above and identified the need to continue to plan for and manage coastal erosion, to further develop response strategies to mitigate the impacts of sea level rise, and to support development of local hazard mitigation plans.

The Section 309 Strategy for Coastal Hazards is designed to further develop the findings in these reports through coordination with on-going state initiatives and to implement many of their recommendations. The most effective way to promote and implement these recommendations is to use the reports as working documents, implementing some recommendations as opportunities develop and modifying others as conditions require. Section 309 funding will aid in both the creation and identification of these opportunities. Continuing the work represented by these reports will provide continuity and momentum for efforts related to coastal hazard management.

Fiscal and Technical Needs

Although state, federal, and local resources have already been allocated toward aspects of or precursors to the activities and needs outlined above, additional funding will be needed to ensure completion the Comprehensive Shore Erosion Control Plan, implementation of sea level rise response strategies, and development of local hazard mitigation plans. Currently, both State and local governments lack critical data and information needed to develop accurate and defensible coastal hazards related plans for shore erosion control and sea level rise.

Both the *Final Report* of the Governor's Shore Erosion Task Force and the *Sea Level Rise Response Strategy for Maryland* identified gaps in knowledge regarding shore erosion and sea level rise. These documents outlined the need for the following information:

- updated shore erosion rates and associated maps;
- boat wake impacts on shore erosion rates;
- role of submerged aquatic vegetation in mitigating erosion impacts;
- development of a database to manage dredge material need and availability;
- evaluation of durability and effectiveness of shore erosion control methods;
- benefit-cost analysis of construction projects identified in the Comprehensive Shore Erosion Control Plan;
- development of long-term funding strategies to manage shore erosion;
- detailed coastal elevation data (i.e., LIDAR data);
- impact of groundwater withdrawal on land subsidence and sea level rise; and
- development of a sea level rise predictive model.

These data will be used to develop analytical tools used to complete the Comprehensive Shore Erosion Control Plan and to implement the sea level rise response measures. Additional funding will be required to provide support and technical assistance to communities developing local hazard mitigation plans.

Budget

Comprehensive Shore Erosion Control Plan

Support for this activity will include data and information collection (as outlined above), development and implementation of the Comprehensive Shore Erosion Control Plan, public outreach and workshop development, organization and implementation. Approximately \$150,000 per year would be funded under the Coastal Zone Management Act Section 309 Strategy. The remainder would be funded through other sources. Expenditures over five years may include:

Updated erosion rates:	\$160,000
Boat wake data	\$ 40,000
SAV study	\$ 30,000
Dredge database	\$ 20,000
Sea level rise model	\$ 60,000

Outreach	\$ 31,500
Staff	\$123,000
Staff support	\$ 35,500

Please see Attachment A, *Six Year Budget for Implementation of the Recommendations of the Governor's Shore Erosion Task Force*, for a complete, detailed Shore Erosion Planning budget for Maryland.

Sea Level Rise Recommendations

No specific funding is requested for this activity at this time. However, activities involving sea level rise will be part of the development of the Comprehensive Shore Erosion Control Plan and development of local hazard mitigation plans (see below), including the development of a sea level rise predictive model and incorporation of sea level rise projections in hazard mitigation planning. Specific recommendations listed in the Sea Level Rise Response Strategy will be pursued as conditions warrant and opportunities are presented but will largely require only staff time.

Hazard Mitigation Planning

Planning and outreach costs will be approximately \$100,000 per year to support working with two counties or municipalities.

Workplan

Following is a general workplan and description of activities for the three main components of the coastal hazards strategy– the Comprehensive Shore Erosion Control Plan, implementation of sea level rise recommendations, and development of local hazard mitigation plans.

Comprehensive Shore Erosion Control Plan

The initial analysis of information and data along with the methodologies developed through the on-going partnerships with two coastal counties will provide templates for developing broader regional and statewide approaches. Additional county partners will be sought and plans will be developed for the remaining coastal areas in Maryland. The project will occur in five phases: (1) shore erosion data collection and modeling, to ensure that planning is based on up-to-date, comprehensive information; (2) sea level rise data collection and modeling; (3) creation and implementation of the Comprehensive Plan; (4) on-going public outreach to ensure the input of local communities into the development of these plans; and (5) analysis of long-term financial needs for shore erosion control. The estimate above includes the costs of data acquisition, staff time and public outreach activities outlined by the Task Force. Implementation of the Task Force recommendations is not possible without the required data, nor without the associated staff time and public outreach.

Sea Level Rise Recommendations

Issues related to sea level rise will be incorporated into the local hazard mitigation plans as well as the

development of the Comprehensive Shore Erosion Control Plan. Since these two efforts are statewide in scope and will address all of the coastal areas in Maryland likely to face significant impacts from sea level rise, consideration of sea level rise in these two planning activities will serve as an invaluable initial response to this issue.

In addition to the above initiatives, efforts will be made to continue developing incentives for including consideration of sea level rise in local land use plans and ordinances and to work to protect coastal habitats, such as wetlands, from the impacts of climate change. Modifications of local and/or state statutes may be required to include such provisions. The recent adoption of the *Sea Level Rise Response Strategy for Maryland* as a working document by the Department of Natural Resources provides added visibility and support to furthering specific recommendations outlined in this document.

Hazard Mitigation Planning

The Maryland Emergency Management Agency's *State of Maryland Hazard Mitigation Plan* rated 14 counties and municipalities at a high to medium risk for coastal flooding and/or storm surge impacts. Section 309 funding will be utilized to develop local hazard mitigation plans in these localities. Local and state hazard mitigation planning teams will be convened to collect information and develop strategies based on local conditions and resources. The hazard mitigation planning teams will include both state and local government representatives as well as local citizens to ensure local input and ultimate acceptance of the plan elements. Public outreach will also be conducted during the development of the local plans to collect a wide range of public input, address local concerns and include additional information or data. The local plans will incorporate available data, including that from the Comprehensive Shore Erosion Control Plan and sea level rise predictive model, as well as other information developed over the course of this strategy.

Likelihood of Success

Interest and concern for sea level rise, coastal erosion and other coastal hazard issues are increasing both nationally and locally. In Maryland specifically, the Governor's Shore Erosion Task Force was formed in response to citizen concern about erosion. Sea level rise was incorporated into the new Chesapeake Bay 2000 Agreement, which includes provisions for examining global climate change and the potential impacts on wetland habitats. And in general, heightened emphasis on mitigative solutions in lieu of post-disaster relief efforts points to the need to better plan for coastal hazards.

With public input, significant accomplishments in planning for coastal hazards have already been achieved in Maryland and a number of state agencies and their local partners are poised to maintain the momentum to include coastal hazard issues in state and local plans and ordinances. For example, coordinated efforts and partnering between the Department of Natural Resources, the Maryland Emergency Management Agency, the Maryland Department of the Environment and several counties will be used to address specific mitigation measures for sea level rise.

Continuing visibility of sea level rise, shore erosion and coastal flooding issues in the local and national press provide increased popular understanding and exposure to issues related to this strategy. Outreach is being developed for federal, state and local legislators, their staff, and the public to improve understanding of coastal hazards issues in Maryland and generate widespread support for related initiatives.

Planning for shore erosion control is underway. Currently, the Department of Natural Resources has partnered with two coastal counties and local citizens groups to begin creation of the Comprehensive Shore Erosion Control Plan. The tools and methodologies developed under these partnerships were designed to be easily transferrable to a statewide planning process and will serve as models for implementation of the Shore Erosion Task Force recommendations statewide.

Sea level rise issues were recently identified as a priority area for the Coastal and Watershed Resources Advisory Committee, a standing advisory group developed to provide the Maryland Coastal Zone Management Program with citizen, local government, and business input. This group has reviewed the *Sea Level Rise Response Strategy for Maryland* and has recommended that the issues continue to be pursued by the state.

Combining shore erosion management planning with sea level rise management and local coastal hazard mitigation planning efforts increases the efficiency of both planning and outreach efforts. This coordination also results in the development of comprehensive products that are multidimensional and more effective in habitat and resource protection.

References

Johnson, Z. 2000. *A Sea Level Rise Response Strategy for the State of Maryland*. Annapolis, MD: Maryland Department of Natural Resources. 49 pp.

Leatherman, S.P., R. Chalfont, E.C. Pendleton, T.L. McCandless, and S. Funderburk. 1995. *Vanishing Lands: Sea Level, Society, and Chesapeake Bay*. Annapolis, MD: University of Maryland Laboratory for Coastal Research and the U.S. Fish and Wildlife Service Chesapeake Bay Office.

State of Maryland Hazard Mitigation Plan. 2000. Maryland Emergency Management Agency and State Hazard Mitigation Policy Team. 59 pp.

State of Maryland Shore Erosion Control Task Force Final Report. 2000. Annapolis, MD: Maryland Department of Natural Resources. 64 pp.

CUMULATIVE AND SECONDARY IMPACTS WATERSHED RESTORATION ACTION STRATEGIES

Issue Summary

Human impacts influence Maryland's coastal zone in numerous ways. These include increased growth, conversion of land to development, and a variety of point and nonpoint source pollution problems. Because of the wide range of issues facing the State and the cumulative nature of their effects, it is important to use a comprehensive approach in addressing these issues. Maryland's waterways already show signs of degradation from cumulative and secondary impacts. These can be seen in high nutrient loads, loss of habitat and excess sedimentation. In 1998, the Maryland Clean Water Action Plan identified 43 watersheds within the coastal zone in need of priority restoration (see Maryland Section 309 Assessment). In addition, 21 watersheds were identified to be in need of protection and preservation. There was some overlap between the two categories. It is expected that between 1990 and 2020 population in Maryland will increase by 28 percent, with much of this increase falling within the coastal zone. A watershed approach will enable the State to look holistically at the wide range of issues effecting its land and waterways.

The Department of Natural Resources has begun partnering with local communities and other agencies to develop local Watershed Restoration Action Strategies (WRAS). The WRAS Program is a multi-year, multi-program approach to integrated watershed protection and restoration. The goal of WRAS are to comprehensively design and implement water quality and habitat improvement activities on a local watershed scale. This is accomplished by providing local governments with the financial and technical assistance necessary to develop and implement the strategies. Components of the planning process include watershed characterization, stream corridor assessment, public participation, goal setting and action plan development.

The Maryland WRAS Program builds upon the 1998 Federal Clean Water Action Plan (CWAP), which proposed an expanded collaborative effort by state, federal, and local governments, the private sector, and the public to address all aspects of watershed health. The WRAS Program incorporates Maryland's Clean Water Action Plan goals, including: restoration of watersheds not meeting clean water and other natural resource goals, and sustaining healthy conditions in watersheds currently meeting those goals.

Maryland has several initiatives that support and/or require a "holistic" watershed approach to looking at issues such as stream buffers, land use, growth, and habitat. The watershed restoration action strategies are an opportunity to combine and coordinate these multiple programs and projects. Increased coordination will strengthen the networked nature of Maryland's CZM Program. A list of state initiatives that have incorporated a watershed approach is attached (Attachment B).

These major efforts are all vital components of Maryland's coastal environmental restoration and

protection strategy. Clearly, these efforts are closely related, many have similar goals and approaches, and can be implemented in a coordinated manner that will strengthen all of the related programs. Closer integration of watershed planning will help achieve more cost-effective pollution control and habitat restoration efforts, for example, by coordinating various program requirements and time lines for a single water body and selecting the most effective implementation mechanisms. Additionally, linking watershed efforts will increase stakeholder confidence and certainty.

Proposed Program Changes / Implementation Plan

The WRAS will serve as agreements between local governments, the Maryland CZM Program and appropriate state agencies. These strategies will identify areas of concern, monitoring strategies, gaps in information, mitigation options, and restoration and protection opportunities. Specific program changes can be found at both the state and local level. These are described in greater detail below:

This Section 309 strategy will provide for the adoption of program changes at the local level. Local governments are required to meet state guidelines regarding growth and planning. As local governments lead efforts to create watershed strategies, outcomes could include: incorporation of strategy elements into local comprehensive plans; adoption of local implementing tools, such as zoning ordinances and environmental codes; modification to sensitive areas elements; and alterations to Smart Growth Priority Funding Areas.

The WRAS Program reinvents Maryland's program delivery process and includes partnerships with other state agencies. Currently, this coordination includes the review of watershed characterizations, sharing of relevant information and data, and cooperation on specific topics of concern. In the future, this partnership could be increased to support prioritization of some technical and financial assistance based on the availability of a watershed strategy. The WRAS initiative will be included in the updating of Memorandum of Understanding between networked CZM agencies.

Anticipated Effects of Change

This effort will lead to the development of approximately 18 Watershed Restoration Action Strategies, with three started in FFY2000 (See Assessment for details), for priority watersheds located within Maryland's coastal zone boundary. Using public participation, these plans will take a comprehensive look at the watersheds and result in a defined implementation plan for each one. Anticipated improvements include:

- A comprehensive strategy to improve the watershed: The final product in this initiative is a comprehensive goal that when implemented will improve watershed health and water quality. This can include reduction in nonpoint source pollution and sedimentation, increased buffer habitat, improved water quality, preservation of land, and improved aquatic systems.
- Effective delivery of DNR services: DNR technical services, including GIS-based conservation and restoration targeting, field analysis, habitat restoration, monitoring and funding,

are currently delivered on a site by site basis. The WRAS initiative enables the Department to target these resources to priority areas where watershed plans are in development or completed.

- Innovative management projects: Implementing watershed plans require creative approaches to managing pollution and preserving resources. This initiative promotes demonstration projects that can be applied in other watersheds.
- Increased coordination and partnerships: The WRAS initiative demands cooperation at both a local and state level. This partnership can include technical knowledge, financial assistance, planning expertise, and implementation.
- Increased capacity: By working with state agencies and other partners, local governments are increasing their capacity to do watershed planning.
- Marketing Tool: The final watershed strategy can serve as a marketing tool to leverage funds and technical assistance.

The long-term goal is to have the WRAS serve as a template for improving coastal land and water resources throughout the coastal zone. Not only will the strategies improve coordination and program focus, there will be resource improvements as the strategies are implemented.

Appropriateness of Program Change

Cumulative and secondary impacts were identified as a high priority in the Maryland Section 309 Assessment. In the past, Maryland's Section 309 efforts under this enhancement area have focused on strengthening the sensitive elements associated with local government comprehensive plans. With the identification of priority watersheds and scientific recognition of a comprehensive watershed management, the state recognized the need to take a watershed-based approach to restoring and protecting its resources.

A WRAS is largely an intergovernmental plan of work which identifies the most important causes of water pollution and resource degradation, details actions needed to address these problems, and sets milestones by which to measure progress. It coordinates and improves existing programs and planning capacities based on the assessment of natural resource conditions and scientific monitoring data -- increasing capacity to address environmental problems at a watershed level, and strengthening existing organizations charged with assessment, planning, and implementation. WRAS are also designed to address the limitations of traditional planning and restoration approaches, including: (1) potential for independent projects to duplicate or undermine other projects at various levels of government or citizen activity; (2) lost opportunities to deliver integrated financial, technical, public participation and other services; and (3) need for state or federal restoration and preservation projects to obtain local buy-in and sponsorship to address communities' real priority environmental challenges.

Experience has shown that a key to making this locally-based program a success is DNR's provision of financial and technical resources to local governments in exchange for local sponsorship of watershed

strategy development, and assumption by local authorities among others of the responsibility for its implementation. By providing local governments with funding to develop their watershed planning efforts, Maryland is promoting the watershed approach while getting local buy-in to the process. This is critical to a successful initiative.

Finally, as the lead partners, local governments have a great interest in ensuring that the final strategies are implemented. During strategy development, local stakeholders will focus on areas of concern to them. Implementation will be done on the local level with the appropriate financial and technical support from state agencies. This implementation could include additions to local comprehensive plans, modification in planning and zoning, or specific restoration efforts.

In order to promote this approach, It is anticipated that as efforts move forward the CZM Program will include WRAS as a component in their revised MOUs between networked state agencies.

Fiscal and Technical Needs

A key to watershed planning is an accurate assessment of the resources and issues. Not all data is available at a watershed scale and specific monitoring and surveying would provide valuable information for decision making. Data needs could include water quality monitoring, stream surveys, or fish and benthic data collection. As appropriate, these assessments should be completed prior to finalizing the watershed strategy. In addition, it is important to monitor the success of strategy implementation.

There is also a great need for the sharing of technical information. The Department has technical expertise and information that is key to developing an accurate characterization and watershed strategy. Relevant state data include land use maps, environmental indicators, sensitive areas and green infrastructure. In addition, the State has technical expertise not available in all counties, including geographical information systems (GIS), restoration planning, and mitigation banking planning. The WRAS Program will be the means for providing this critical state-level information to localities in an integrated fashion.

Budget

Task	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Strategic Planning - Local Government	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000
Data Collection, Analysis and Demonstration Projects	\$ 90,000	\$ 90,000	\$ 90,000	\$ 90,000	\$ 90,000
Strategy Implementation	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000
Total	\$270,000	\$270,000	\$270,000	\$270,000	\$270,000

Work Plan

Strategic Planning - Local Government: The strategy proposed will span five years. However, WRAS pilot projects are underway in three counties using FY2000 funds. The WRAS framework includes an eighteen-month watershed management planning process for each watershed, followed by local implementation of priority actions. The WRAS development process includes:

- bringing together stakeholders;
- characterizing the watershed;
- conducting stream corridor assessment surveys;
- identifying and prioritizing of issues of concern;
- developing environmental management goals and actions;
- creating a financial plan; and
- developing a strategy to monitor effectiveness of the WRAS.

An interim product is the Watershed Characterization Report, which includes the assessment of the current condition of the watershed and establishment of baseline data including, for example:

- areas of population growth;
- sensitive coastal resources;
- impacts (threats) to resources;
- regulatory and planning programs that can be used to address impacts;
- trends in the health of the watershed; and
- application of restoration targeting tools to identify potential restoration and protection opportunities.

Based on the findings of this report and additional information, a public outreach and visioning process is conducted in each locality to define problems, and set goals and objectives. Implementation priorities, for restoration and protection projects, as well as funding mechanisms, roles, responsibilities, and time frames are established.

Data Collection, Analysis and Demonstration Projects: Funding under this component will focus on meeting information needs for strategy development and supporting innovative analysis tools and management techniques that can be applied in multiple watersheds.

Data collection and monitoring would be focused on needs identified by the selected WRAS counties. An example would be a stream corridor assessment where trained teams from the Maryland Conservation Corps walk (or paddle) an entire watershed, documenting stream corridor or shoreline problems and restoration opportunities, rate them as to accessibility, severity, and correctability. A database and report of the findings would then be used in strategy development.

Demonstration projects would be funded based on innovativeness and need. These projects would not necessarily fall in watersheds selected for complete WRAS development, but could be in areas identified as priority 1 (in need of restoration) or priority 3 (in need of preservation) by the Clean Water Action Plan. This enables other counties (e.g. with watershed plans in place and more pristine

watersheds) to demonstrate and share lessons they have learned and the challenges they have addressed. The key component of these projects would be the ability to share the information with other local governments.

Strategy Implementation: Finally, some Section 309 funds would be reserved for implementation priorities identified in the final WRAS. These implementation projects will focus on achieving coastal resource protection and enhancement, incorporation of coastal resource protection policies into local master plans and ordinances, and improved coordination among agencies responsible for land use programs, water quality, and habitat protection.

Likelihood of Success

The WRAS process is an excellent opportunity to foster the State CZM Program's transition to a more holistic, comprehensive, watershed-based approach. Such deep programmatic change is a necessary step toward greater local investment and empowerment with regard to the unique natural resources and environmental heritage that distinguish and shape local communities. It is also important in the implementation of new Clean Water Act TMDLs.

The degree of support for this type of strategy is strong in Maryland. The Department of Natural Resources, in conjunction with a number of federal and state agencies, has committed to implement watershed management planning. As mentioned earlier, other ongoing initiatives that support strategy development include Tributary Strategies, Chesapeake Bay Program, the Coastal Bays National Estuary Program, Total Maximum Daily Loads, and Smart Growth legislation. This strategy builds on the coordination at all levels of government, and allows stakeholders to be involved in the planning, design and implementation of strategies for the regions in which they live.

Upon completion of the strategies a key to success will be implementation. Efforts are underway to ensure that funding and technical expertise are available to see the strategies through to fruition. Only a small portion of implementation funds would funnel through CZM Section 309. The majority would come from other programs including Clean Water Act Section 319 which provides nonpoint source pollution control funds. To aid county's in finding appropriate funding sources, a part of the WRAS initiative is the development and distribution of a financial assistance guide.

In summary, this strategy proposes building on support for a watershed planning approach to address the cumulative impacts of development on coastal resources. The strategy will continue momentum among the public, interest groups and governmental agencies who strive to bring about both program changes to Maryland's Coastal Management Program, as well as changes in land-use decision-making at all levels of government to protect Maryland's coastal resources.